KDS

IX Elite work – 8 (Answers) LINEAR EQUATIONS & COORDINATE GEOMETRY

1) If (4, 19) is a solution of the equation $y = ax + 3$, then $a =$
(a) 3 (b) 4 (c) 5 (d) 6
Solution:-
When $x = 4, y = 19 \Rightarrow 19 = 4a + 3$
$\Rightarrow 4a = 16$
$\therefore a = 4$ (b)

2) If (a, 4) lies on the graph of $3x + y = 10$, then the value of a is
(a) 3 (b) 1 (c) 2 (d) 4
Solution:-
When $x = a, y = 4 \Rightarrow 3a + 4 = 10$
$\Rightarrow 3a = 6$
$\therefore a = 2$ (c)

3) The graph of the linear equation $2x - y = 4$ cuts x-axis at
(a) (2, 0) (b) (−2, 0) (c) (0, −4) (d) (0, 4)
Solution :-
When $2x - y = 4$ cuts x-axis, $y = 0$
Then, $2x = 4$
$\therefore x = 2$
Thus, the required point is (2, 0) (a)

4) How many linear equations are satisfied by $x = 2$ and $y = -3$?
(a) only one (b) two (c) three (d) infinitely many
Solution :-
infinitely many (d)

5) The equation $x - 2 = 0$ on number line is represented by
(a) a line (b) a point (c) infinitely many lines (d) two lines
Solution:-
$x - 2 = 0$
$x = 2$, a point (b)

6) $x = 2, y = -1$ is a solution of the linear equation
(a) $x + 2y = 0$ (b) $x + 2y = 4$ (c) $2x + y = 0$ (d) $2x + y = 5$

Solution:-

When $x=2, y=-1 \Rightarrow$ LHS, $x+2y$

$= 2+2\times(-1)$

$= 2-2$

$= 0$, RHS

Thus, $x+2y=0$ (a)

7) If $(2k-1, k)$ is a solution of the equation $10x-9y=12$, then $k=$

(a) 1 (b) 2 (c) 3 (d) 4

Solution:-

When $x=2k-1, y=k \Rightarrow 10(2k-1)-9k=12$

$\Rightarrow 20k-10-9k=12$

$\Rightarrow 11k=12+10$

$\Rightarrow 11k=22$

$\therefore k=2$ (b)

8) The distance between the graph of the equations $x=-3$ and $x=2$ is

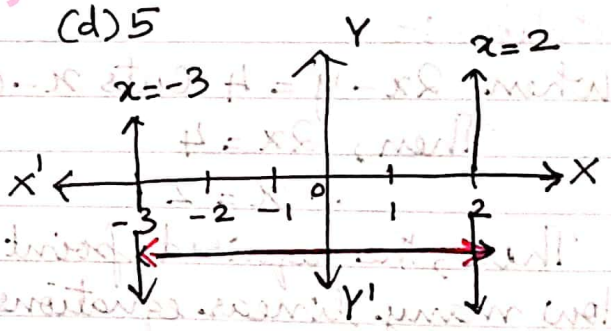
(a) 1 (b) 2 (c) 3 (d) 5

Solution:-

distance $= 2+3$

$= 5$ units

(d)



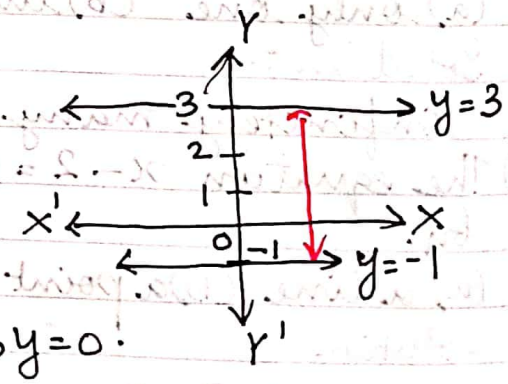
9) The distance between the graphs of the equations $y=-1$ and $y=3$ is

(a) 2 (b) 4 (c) 3 (d) 1

Solution:-

distance $= 3+1$

$= 4$ units (b)



10) When $4x+3y=12$ cuts x-axis, $y=0$.

Then, $4x=12 \Rightarrow x=3$

$\therefore$ The point is $(3, 0)$

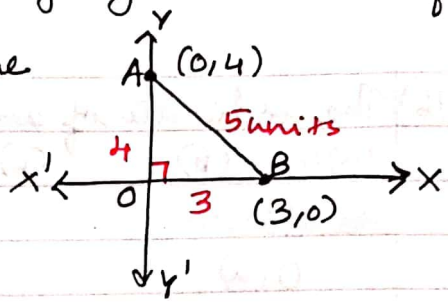
When $4x+3y=12$ cuts y-axis, $x=0$

Then, $3y=12 \Rightarrow y=4$

Q.10) If the graph of the equation $4x+3y=12$ cuts the coordinate axes A and B, then hypotenuse of right $\triangle AOB$ is of length

(a) 4 units (b) 3 units (c) 5 units (d) none

$\therefore$ the point is $(0, 4)$



Using Pythagoras theorem

in rt. $\triangle AOB$, $AB^2 = OA^2 + OB^2$

$= 4^2 + 3^2$

$= 16 + 9 = 25$

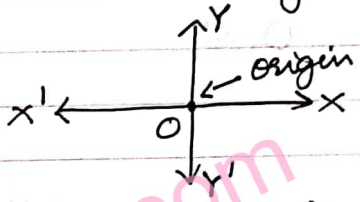
Hypotenuse AB = 5 units (c)

11) The point of intersection of the coordinate axes is

(a) ordinate (b) abscissa (c) quadrant (d) origin

Solution:

origin (d)

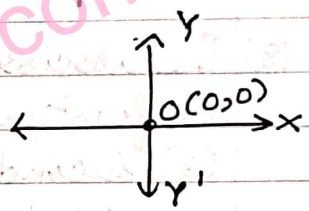


12) The abscissa and ordinate of the origin are

(a) (0,0) (b) (1,0) (c) (0,1) (d) (1,1)

Solution :-

(0,0) (a)

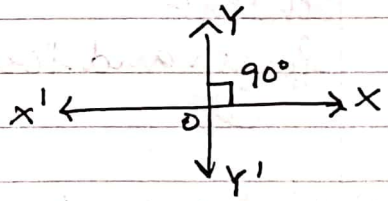


13) The measure of the angle between the coordinate axes is

(a) 0° (b) 90° (c) 180° (d) 360°

Solution :-

90° (b)

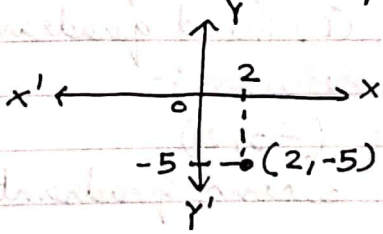


14) A point whose abscissa and ordinate are 2 and -5 respectively, lies in

(a) first quadrant (b) second quadrant (c) third quadrant (d) fourth quadrant.

Solution :-

fourth quadrant (d)

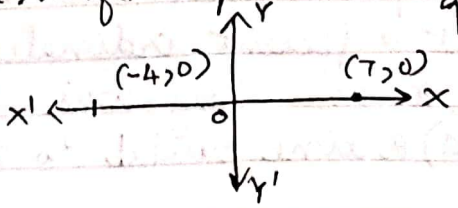


15) Points (-4,0) and (7,0) lie

(a) on x-axis (b) y-axis (c) in first quadrant (d) in second quadrant

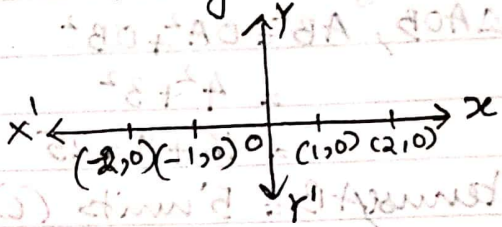
Solution :-

on x-axis (a)



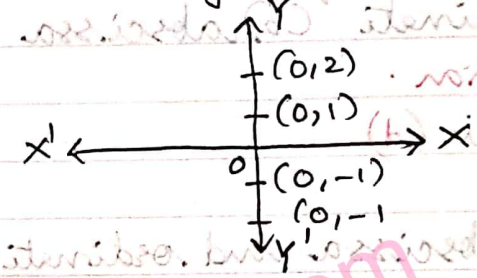
16) The ordinate of any point on x-axis is
(a) 0 (b) 1 (c) −1 (d) any number

Solution:-
0 (a)



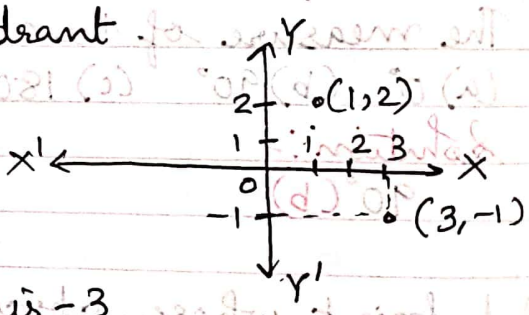
17) The abscissa of any point on y-axis is
(a) 0 (b) 1 (c) −1 (d) any number

Solution:-
0 (a)



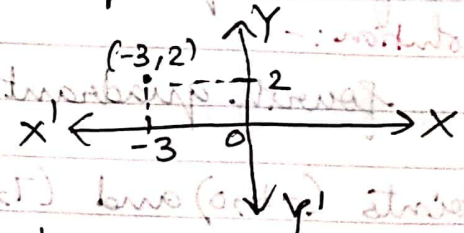
18) The abscissa of a point is positive in the
(a) first and second quadrant
(b) second and third quadrant
(c) third and fourth quadrant
(d) fourth and first quadrant

Solution:-
fourth and first quadrant
(d)



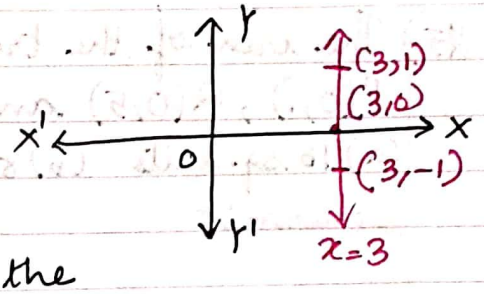
19) A point whose abscissa is −3 and ordinate 2 lies in
(a) first quadrant (b) second quadrant
(c) third quadrant (d) fourth quadrant

Solution:-
(−3, 2)
Second quadrant (b)

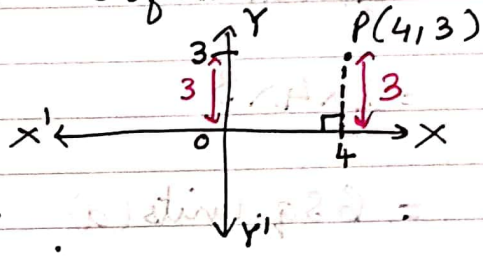


20) Two points having same abscissae but different ordinates lie on
(a) x-axis (b) y-axis (c) a line parallel to y-axis
(d) a line parallel to x-axis.

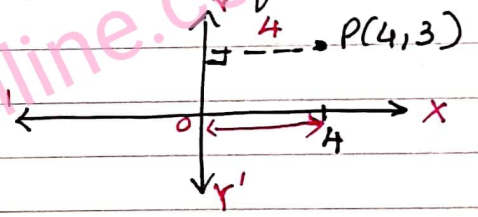
Solution:-
a line parallel to y-axis (c)



21) The perpendicular distance of the point P(4,3) from x-axis is
(a) 4 (b) 3 (c) 5 (d) none of these
Solution:-
3 units (b)



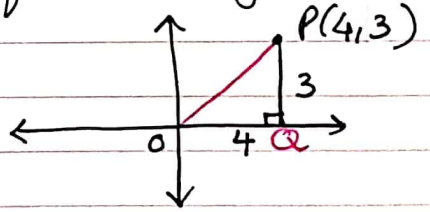
22) The perpendicular distance of the point P(4,3) from y-axis is
(a) 4 (b) 3 (c) 5 (d) none of these
Solution:-
4 units (a)



23) The distance of the point P(4,3) from the origin is
(a) 4 (b) 3 (c) 5 (d) 7
Solution:-
Using Pythagoras Theorem in rt. $\triangle POQ$, $OP^2 = OQ^2 + PQ^2$

$= 4^2 + 3^2 = 16 + 9 = 25$

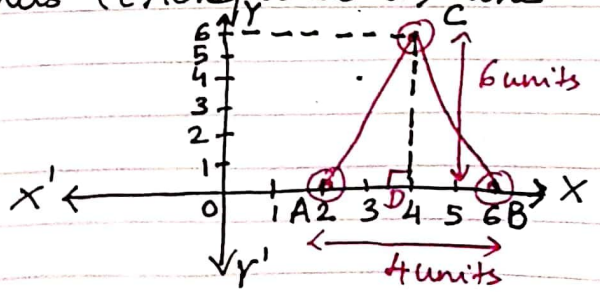
$OP = 5$ units (c)



24) The area of the triangle formed by the points A(2,0), B(6,0) and C(4,6) is
(a) 24 sq. units (b) 12 sq. units (c) 10 sq. units (d) none
Solution:-
Area $(\triangle ABC) = \frac{1}{2} \times AB \times CD$

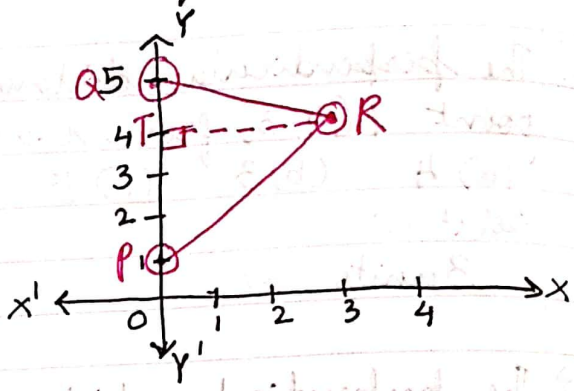
$= \frac{1}{2} \times 4 \times 6$

$= 12$ sq. units (b)



25) The area of the triangle formed by the points P(0,1), Q(0,5) and R(3,4) is
(a) 16 sq. units (b) 8 sq. units (c) 4 sq. units (d) 6 sq. units

Solution:-



$$\text{area}(\triangle PQR) = \frac{1}{2} \times PQ \times RT$$

$$= \frac{1}{2} \times 4 \times 3$$

$$= 6 \text{ sq. units}$$ (d)